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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/836,973	04/18/2001	Harry Q. Pon	INTL-0452-US (P9563)	9071

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EXAMINER

A, MINH D

ART UNIT PAPER NUMBER

2821

DATE MAILED: 09/04/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/836,973

Applicant(s)

PON, HARRY Q.

Examiner

Minh D A

Art Unit

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— The MAILING DATE of this communication appears on the cover sheet with the correspondence address —

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 April 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 13-21, 24 and 26-30 is/are pending in the application.
- 4a) Of the above claim(s) 1-12, 22, 23 and 25 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 13-21, 24 and 26-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

1. Applicant's election with traverse of claims 13-21 and 24 and 26-30 are acknowledged.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

3. Claims 13-15, 18, 20-21 and 24, 26-29 are rejected under 35 U.S.C. 102(a) as being unpatentable by Mandelman (US 6,437,401).

Regarding claim 13, Mandelman discloses a structure and method for improved isolation in trench storage cells comprising: a semiconductor substrate (20); an interconnection layer (11 or 15) positioned over the substrate (20); a passive circuit element between the substrate (20) and the interconnection layer (11 or 15); and a trench (30) that encircles the passive circuit element, the trench (30) filled with a conductive material (18 and 19). See figures 2-8, col.6, lines 4-67 to col.11, lines 1-27.

Regarding claim 14, Mandelman discloses the trench (30) substantially encircles the passive circuit element. See figure 2 or 7-8.

Regarding claim 15, Mandelman discloses the material (11 or 15) includes an opening for an electrical connection to the passive circuit element. See figures 2 or 7-8.

Regarding claim 17, Mandelman discloses that, a first (11), second (15) and third (31) interconnection layers, the passive circuit element formed in the second

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interconnection layer(15) and a pair of metal-filled trenches (30) extending between the first and second interconnection layers (11 and 15) and the third (31) and second interconnection layers (15). See figures 2 or 7-8.

Regarding claim 18, Mandelman discloses the trench (30) extends from the interconnection layer (11 or 15 or 31) to the substrate (20). See figure 2.

Regarding claim 20, Mandelman discloses that, a buried contact which couples the passive circuit element under the material. Col.4, lines 59-67 to col.5, lines 1-12.

Regarding claim 21, Mandelman discloses the material and the interconnection layers are electrically coupled. See figure 2.

Regarding claim 24, Mandelman discloses a structure and method for improved isolation in trench storage cells comprising: a semiconductor substrate (20); an active circuit element formed in the substrate (20); a guard ring (30 or 31) encircling the active circuit element formed in the substrate (20); and a trench (30) filled with a conductive material (11 or 15) coupled to the guard ring (31). See figures 2-8, col.6, lines 4-67 to col.11, lines 1-27.

Regarding claim 26, Mandelman the metal one layer (11 or 15 or 31) over the substrate (20), the material (18 or 19) electrically coupled to the guard ring (31 or 30) and the metal one layer (31). See figure 2.

Regarding claims 27-29, Mandelman discloses that, the guard ring (110) completely surrounds the active circuit element or trench (30) completely surrounds the active circuit element or an active circuit element includes a transistor. See figures 2-8, col.6, lines 4-67 to col.11, lines 1-27.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 16, 19 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over by Mandelman (US 6,281,583).

Regarding claims 16 and 30, Mandelman discloses the claimed invention except for the passive circuit element is a flat spiral inductor or the active circuit element is enclosed in a shield over the substrate. It would have been an obvious matter of design choice to have a flat spiral inductor or enclosed in a shield over the substrate, since applicant has not disclosed that the a flat spiral inductor t or the active circuit element is enclosed in a shield over the substrate solves any stated problem or is for any particular purpose and it appears that the invention would perform equally well with the passive circuit element is a flat spiral inductor or active circuit element is enclosed in a shield over the substrate.

Regarding claim 19, Mandelman discloses the claimed invention except for the material is grounded. It would have been obvious to one having ordinary skill in the art at the time the invention was made to ground, since it has been held to be within the

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general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Wong. (US 6,455,915); Kubota et al. (US 6,445,026); Quek et al. (US 6,252,290); Yuan. (US 6,407,441) are cited to show the integrated circuit.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Minh A whose telephone number is (703) 605-4247. The examiner can normally be reached on M-F (7:30 —4:30 PM).

If attempts to reach the examiner by telephone is unsuccessful, the examiner's supervisor, Don Wong, can be reached on (703) 308-4856. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9318 for regular communications and (703) 872-9319 for final communications.

Any inquiry of a general nature or relating to the status of this application should be directed to the Technology Center receptionist whose telephone number is (703) 308-0956.

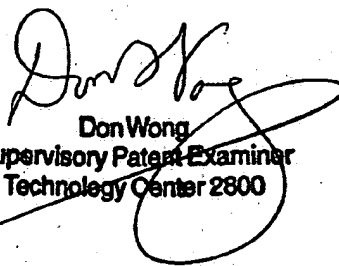
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Examiner

Minh A

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8/24/03


Don Wong
Supervisory Patent Examiner
Technology Center 2800